



*Substitute  
Specification*

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## REFRIGERATOR

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

[01] The present invention relates to a refrigerator, and more particularly, to a refrigerator in which a storage compartment is partitioned by shelves into a plurality of compartments, thereby enhancing functionality and space utilization of the storage compartment.

#### 2. Description of the Related Art

[02] Generally, in a storage compartment of a refrigerator, a plurality of shelves is provided at predetermined intervals to accommodate various foodstuffs assortatively, wherein the shelf is supported by a shelf holder.

[03] In a conventional refrigerator as shown in FIG. 1, a shelf comprises a glass 2 on which foodstuffs are laid; a glass supporter 4 coupled to edges of the glass 2; and a supporting brackets 6 provided in opposite sides of the glass supporter 4 and supported onto a shelf holder (not shown).

[04] However, in the conventional refrigerator, the glass 2, the glass supporter 4, and the supporting bracket 6 are assembled by injection molding into the shelf having the foregoing structure, so that an assembling process is

relatively simple, but there arise problems that a molding process needs very high precision and minute error causes a defective.

[05] Besides, various shelves of the refrigerator have been disclosed, for example, in Korean Patent Application No. 1999-0067078 and Korean Utility Model Application No. 1997-0039374, but most of them are complicated in a constituent and an assembling structure. Therefore, problems arise in assembling efficiency and economies.

### **SUMMARY OF THE INVENTION**

[06] Accordingly, is an aspect of the present invention to provide a refrigerator having a shelf which can be produced with low defective percentage and be stably supported.

[07] The foregoing and/or other aspects of the present invention are achieved by providing a refrigerator comprising a main body formed with a storage compartment, a door hingedly connected to the main body; and at least one shelf provided inside the storage compartment, the shelf comprising: a glass on which foodstuffs are laid; a glass supporter coupled to edges of the glass; a pair of supporting brackets provided in opposite sides of the glass supporter and supported onto a wall of the storage compartment; and a coupler coupling the glass supporter with the supporting bracket.

[08] According to an aspect of the invention, the coupler comprises a screw.

[09] According to an aspect of the invention, the glass supporter comprises a main portion coupled to the edges of the glass; and a bracket

coupling portion extended downward at opposite sides of the main portion and formed with a plurality of coupling bosses, and the supporting bracket is formed with a screw through hole through which the screw is coupled to each coupling boss.

[10] According to an aspect of the invention, the bracket coupling portion comprises a plurality of supporting ribs formed between the coupling bosses, and the supporting bracket is formed with a bending portion fitted to the supporting ribs and supporting the main portion.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

[11] These and other aspects and advantages of the present invention will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompany drawings of which:

[12] FIG. 1 is a sectional view of a shelf structure of a conventional refrigerator;

[13] FIG. 2 is a perspective view of a refrigerator according to an embodiment of the present invention;

[14] FIG. 3 is an exploded perspective view of a shelf structure of the refrigerator according to an embodiment of the present invention;

[15] FIG. 4 is an assembled perspective view of the shelf of FIG. 3;  
and

[16] FIG. 5 is a sectional view of the shelf structure, taken along line V-V in FIG. 4.

## **DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS**

[17] Reference will now be made in detail to the embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout. The embodiments are described below in order to explain the present invention by referring to the figures.

[18] FIG. 2 is a perspective view of a refrigerator according to the present invention.

[19] As shown therein, a refrigerator according to an embodiment of the present invention comprises a main body 20 formed with a storage compartment 22; a door 30 hingedly connected to the main body 20 and selectively opening and closing the storage compartment 22; and at least one shelf 40 provided inside the storage compartment and on which foodstuffs are laid.

[20] The storage compartment 22 of the main body 20 is partitioned by a partition wall into a freezing compartment 22a and a refrigerating compartment 22b, and each of the freezing and refrigerating compartments 22a and 22b is portioned by the shelves 40 into a plurality of compartments to assortatively accommodate and efficiently store various foodstuffs.

[21] Under the storage compartment 22 is provided a vegetable compartment 26.

[22] Inside rear opposite sides of the freezing and refrigerating compartments 22a and 22b are provided shelf holders 28 having an elongated

shape and supporting the shelves 40. Further, the shelf holder 28 is formed with a plurality of interval adjusting holes 29 making it possible to adjust the interval between the shelves 40.

[23]           The shelf 40 has enough hardness to stably support the foodstuffs laid thereon.

[24]           FIG. 3 is an exploded perspective view of a shelf structure of the refrigerator according to the present invention, FIG. 4 is an assembled perspective view of the shelf of FIG. 3, and FIG. 5 is a sectional view of the shelf structure, taken along line V-V in FIG. 4.

[25]           As shown in FIGS. 2, 3, 4 and 5, the shelf 40 according to an embodiment of the present invention comprises a glass 50 on which foodstuffs are laid; a glass supporter 60 coupled to edges of the glass 50; a pair of supporting brackets 70 provided in opposite sides of the glass supporter 60 and supported onto a wall of the storage compartment 22; and a coupler 80 coupling the glass supporter 60 with the supporting bracket 70.

[26]           Preferably, the glass 50 is shaped like a rectangular plate, and is made of a tempered glass that is relatively excellent in endurance and not easily breakable by the foodstuff laid thereon. Alternately, the glass 50 may be replaced with others such as synthetic resin having high hardness, etc. as long as it is similar to the glass 50 in functions and effects and performs the same function as compared with the glass 50.

[27]           The glass supporter 60 is made by injection molding and is compactly coupled to the edges of the glass 50 to support the whole glass 50.

The glass supporter 60 can be made of material selected among well-known materials.

[28]           The glass supporter 60 comprises a main portion 62 shaped like a rectangular frame and coupled to the edges of the glass 50; and a bracket coupling portion 64 extended downward at opposite sides of the main portion 62 and formed with a plurality of coupling bosses 63 arranged longitudinally. In correspondence to the glass supporter 60, the supporting bracket 70 is formed with a screw through hole 72 through which the coupler 80 is coupled to each coupling boss 63.

[29]           The main portion 62 is inwardly formed with a glass insertion groove 61 to compactly accommodate the edges of the glass 50, thereby supporting the glass 50.

[30]           The supporting bracket 70 is coupled to the glass supporter 60 through the coupler 80 such as a screw or the like, thereby stably supporting the glass supporter 60 and the glass 50.

[31]           The supporting bracket 70 is formed with a hook portion 76 at one end thereof, wherein the hook portion 76 is selectively connected to the interval adjusting holes 29 of the shelf holder 28 provided inside the rear opposite sides of the storage compartment 22 and allows the interval between the shelves 40 to be selectively adjusted. The structure of the supporting bracket 70 may vary as long as it can be firmly coupled to the glass supporter 60 by a screw or the like.

[32] Further, the bracket coupling portion 64 comprises a plurality of supporting ribs 66 formed between the coupling bosses 63 at predetermined intervals, and the supporting bracket 70 is formed with a bending portion 74 fitted to the supporting ribs 66 and supporting the main portion 62. Therefore, the bending portion 74 allows the supporting bracket 70 to more stably support the glass supporter 60 and the glass 50.

[33] The bending portion 74 is formed with a plurality of fitting grooves 75 to be fitted the respective supporting ribs 66.

[34] As described above, the present invention provides a refrigerator of which a shelf is firmly assembled and produced with minimizing a defective percentage because a glass supporter and a supporting bracket are coupled by a coupler.

[35] Accordingly, the assembling efficiency of the refrigerator is enhanced, and the production cost such as cost of materials, etc. thereof is decreased.

[36] Although a few embodiments of the present invention have been shown and described, will be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the principles and spirit of the invention, the scope of which is defined in the appended claims and their equivalents.